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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/700,060	11/09/2000	Toshiyuki Kondo	360842007000	9641

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EXAMINER
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SIMONE, CATHERINE A

ART UNIT	PAPER NUMBER
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1772

DATE MAILED: 08/10/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	09/700,060	KONDO ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Catherine Simone	1772	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 13 July 2004.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1,2,4-19,21,23-29 and 33 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,2,4-19,21,23-29 and 33 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)             | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date. _____  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                                    |

## **DETAILED ACTION**

### ***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 7/13/04 has been entered.

### ***Withdrawn Rejections***

2. The 35 U.S.C. 103 rejection of claim 1 over Head et al. of record in the Final Office Action mailed 1/16/04, Pages 2-3, Paragraph #2 has been withdrawn due to the Applicants amendment filed 7/13/04.
3. The 35 U.S.C. 103 rejection of claims 1-5, 10-19, 21, 23-25 and 33 over Rothman of record in the Final Office Action mailed 1/16/04, Pages 3-6, Paragraph #3 has been withdrawn due to the Applicants amendment filed 7/13/04.
4. The 35 U.S.C. 103 rejection of claims 6, 7 and 29 over Rothman in view of Shiraishi et al. of record in the Final Office Action mailed 1/16/04, Pages 6-7, Paragraph #4 has been withdrawn due to the Applicants amendment filed 7/13/04.
5. The 35 U.S.C. 103 rejection of claims 8 and 9 over Rothman in view of Johnson of record in the Final Office Action mailed 1/16/04, Pages 7-8, Paragraph #5 has been withdrawn due to the Applicants amendment filed 7/13/04.

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6. The 35 U.S.C. 103 rejections of claims 24 and 26-28 over Rothman in view of Bogner et al. of record in the Final Office Action mailed 1/16/04, Pages 8-9, Paragraphs #6 and #7 have been withdrawn due to the Applicants amendment filed 7/13/04.

***Claim Rejections - 35 USC § 112***

7. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

8. Claims 1, 2, 4-19, 21, 23-29 and 33 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 recites the limitation "the fibre reinforced plastic connecting layer" in line

9. There is insufficient antecedent basis for this limitation in the claim.

Claims 10-12, 14 and 33 recite the limitation "the gap" in line 2 of each of claims

- 10, 11, 12, 14 and 33. There is insufficient antecedent basis for this limitation in the claim.

***Claim Rejections - 35 USC § 103***

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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10. **Claims 1, 2, 4-19, 21, 23-29 and 33** are rejected under 35 U.S.C. 103(a) as being unpatentable over Kawanomoto et al. (JP 09-202145) in view of Niimura et al. (JP 08-193409).

Kawanomoto et al. discloses two or more sandwich structures comprising a pair of fibre reinforced plastic sheets (drawings 4-8, #23 and #24) and a rib structure (drawings 7 and 8, #30 and #34-#38) interposed between the pair of sheets which is integrally molded by a resin transfer molding, wherein the fibre reinforced plastic includes a reinforcing fibre that is selected from the group consisting of a carbon fibre, a glass fibre and carbon fibre hybrid, and combinations thereof (see page 4, paragraph #0033, lines 1-4), and wherein the two or more sandwich structures are butt joined in the widthwise direction by being integrally molded by a resin transfer molding. However, Kawanomoto et al. fails to disclose a layer containing resin distribution medium between abutting end faces of the sandwich structures and a fibre reinforced plastic connecting layer extending across the surfaces of both ends of the sandwich structures. Niimura et al. teaches that it is old and well-known in the art to have a layer containing resin distribution medium (drawing 4, #4) between abutting end faces and a fibre reinforced plastic connecting layer (drawing 4, #3) extending across the surfaces of both ends of the FRP layer for the purpose of producing a fibre reinforced plastic panel. Therefore, it would have been obvious to one of ordinary skill in the art at the time the applicant's invention was made to have provided the sandwich structures in Kawanomoto et al. with a layer containing resin distribution medium between abutting end faces and with a fibre reinforced plastic connecting layer extending across the surfaces of both ends of the

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sandwich structures as suggested by Niimura et al. in order to produce a fibre reinforced plastic panel with fire resistance and water resistance.

Futhermore, Kawanomoto et al. fails to disclose the two or more sandwich structures each having a length of from 10 m to 25 m and a width of from 1.5 m to 3.5 m. The optimum ranges for the length and width of each sandwich structure would be readily determined through routine experimentation by one having ordinary skill in the art depending on the desired end results. Therefore, it would have been obvious to one of ordinary skill in the art at the time the applicant's invention was made to have each sandwich structure in Kawanomoto et al. have a length of from 10 m to 25 m and a width of from 1.5 m to 3.5 m, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art in absence of showing unexpected results. *MPEP 2144.05 (II)*

Regarding **claim 2**, note in Kawanomoto et al. the pair of sheets have a thickness of from 2-10 mm (see page 13, paragraph 0105, lines 4-5). Regarding **claim 5**, note in Kawanomoto et al. the reinforcing fibre of the fibre reinforced plastic comprises a multiaxial woven material having a fibre direction at an angle of  $45 \pm 10^\circ$  to the lengthwise direction of the rib structure (see page 4, paragraph 0036). Regarding **claim 6**, note in Kawanomoto et al. the fibre reinforced plastic is carbon fibre reinforced plastic (see page 4, paragraph 0033, line 2). Regarding **claim 7**, note the fibre reinforced plastic is a hybrid fibre reinforced plastic of carbon fibre and glass fibre (see page 4, paragraph 0033, lines 1-4). Regarding **claims 8 and 9**, note the reinforcing fibre is a plain weave or twill weave woven material (see page 4, paragraphs 0034-0036). Regarding **claim 10**, note the gap (drawing 4, #25) provides a uniform spacing along the lengthwise direction

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of the sheets (drawing 4, #23 and #24). Regarding **claim 11**, note the gap provides a spacing that varies along the lengthwise direction of the sheets (drawing 30, #162).

Regarding **claim 12**, note there is arranged, in the gap, a filler (drawing 4, #25; also see page 5, paragraphs 0039 and 0040) having a specific gravity lower than the specific gravity of each pair of sheets. Regarding **claim 14**, note a rigid structure arranged in the gap (see page 5, paragraph 0039). Regarding **claim 15**, note a connecting member for connecting to another member is fitted to an outer face of at least one of the sheets (see page 10, paragraph 0079). Regarding **claims 17 and 18**, note a flexural rigidity of the sandwich structure that is at least  $5 \times 10^7 \text{ kg/mm}^2$  (see page 8, paragraph 0069).

Regarding **claims 19**, note a cross sectional shape is flat sheet shaped (drawing 6).

Regarding **claim 23**, note a gap is formed between adjacent fibre reinforced plastic roofing materials in the widthwise direction (drawing 4, #25). Regarding **claim 24**, note a linked region is covered with a waterproof member (drawing 34, #183). Regarding **claim 25**, note at least one of the sheets comprises a matrix resin comprising phenolic resin (see page 4, paragraph 0033). Regarding **claim 29**, note a fibre reinforced plastic layer comprising carbon fibre that is at least 5% of the fibre reinforced plastic sheet's total thickness (see page 4, paragraph 0033, line 2 and paragraph 0035, lines 10-14).

Regarding **claim 33**, note there is a core material in the gap and there are present, in the core material, through-holes running from an upper face to a lower face (drawing 4, #25; also see page 5, paragraph 0039).

12. Regarding **claims 4 and 16**, Kawanomoto et al. fails to disclose the rib having a thickness of from 1-3 mm, a ratio of the sandwich structure's overall thickness to each of the sheet's thickness in the range 5:1 to 25:1 and the sandwich structure having a density

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that is no more than  $100 \text{ kg/m}^2$ . The optimum ranges for the rib thickness, the ratio of the sandwich structure's overall thickness to each of the sheet's thickness and the density for the sandwich structure would be readily determined through routine experimentation by one having ordinary skill in the art depending on the desired end results as shown by Kawanomoto et al. Therefore, it would have been obvious to one of ordinary skill in the art at the time the applicant's invention was made to have provided Kawanomoto et al. with a rib with a thickness of from 1-3 mm and a ratio of the sandwich structure's overall thickness to each of the sheet's thickness in the range 5:1 to 25:1 and the sandwich structure having a density that is no more than  $100 \text{ kg/m}^2$ , since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art in absence of showing unexpected results. *MPEP 2144.05 (II)*.

13. Regarding **claims 13 and 21**, Kawanomoto et al. fails to disclose at least one of the sheets having a jagged form in which there are alternatively arranged peaks and troughs and the FRP material having a shape in the lengthwise direction that is a circular arc. Normally, it is to be expected that a change in shape of the sheet would be an unpatentable modification. Under some circumstances, however, changes such as shape may impart patentability to a product if the particular shape claimed produces a new and unexpected result which is different in kind and not merely in degree from the results of the prior art. *In re Dailey et al*, 149 USPQ 47 CCPA 1966.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the applicant's invention was made to change the shape of at least one of the sheets in Kawanomoto et al. to have a jagged form in which there are alternatively arranged



peaks and troughs and to change the shape of the FRP material in Kawanomoto et al. to be a circular arc in the lengthwise direction. One skilled in the art would have been motivated to do so in order to form a fibre reinforced plastic material, since it has been held that the change in form or shape of the FRP material would be an unpatentable modification absence of showing unexpected results.

14. Regarding **claim 26**, Kawanomoto et al. fails to disclose a fire-resistant material provided on at least one face of the fibre reinforced plastic material. Niimura et al. also teaches that it is old and well-known in the art to have a fire-resistant material provided on a fibre-reinforced layer (see page 4, paragraph 0037) for the purpose of producing an incombustible fibre-reinforced plastic panel. Therefore, it would have been obvious to one of ordinary skill in the art at the time the applicant's invention was made to have provided a fire-resistant material on at least one of the fibre reinforced plastic sheets in Kawanomoto et al. as suggested by Niimura et al. in order to produce an incombustible fibre-reinforced plastic panel. Regarding **claims 27** and **28**, Niimura et al. fails to disclose the fire-resistant material containing either rock wool or phenolic foam. It would have been obvious to one of ordinary skill in the art at the time the applicant's invention was made to have the fire-resistant material in Niimura et al. contain either rock wool or phenolic foam, since it had been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice and it would be entirely obvious absence of showing unexpected results. *In re Leshin*, 125 USPQ 416.

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***Response to Arguments***


15. Applicant's arguments with respect to claims 1, 2, 4-19, 21, 23-29 and 33 have been considered but are moot in view of the new ground(s) of rejection.


***Conclusion***

16. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Catherine Simone whose telephone number is (571)272-1501. The examiner can normally be reached on 9:30-6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Harold Pyon can be reached on (571) 272-1498. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
Catherine Simone  
Examiner  
Art Unit 1772  
August 5, 2004

  
HAROLD PYON  
SUPERVISORY PATENT EXAMINER  
1772

8/6/04